UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

TN

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.

EXAMINER

ART UNIT	PAPER NUMBER
	5

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/632,812	Coberly et al
Examiner	**Art Unit**
Cynthia L. Nessler	1761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *one* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) X Responsive to communication(s) filed on *Jun 4, 2000* .

2a) ☐ This action is **FINAL.** 2b) X This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) X Claim(s) *1-12* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) X Claim(s) *1-8* is/are allowed.

6) X Claim(s) *9-12* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) X Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). ____

18) ☐ Interview Summary (PTO-413) Paper No(s).

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

The patent sought to be reissued by this application 09/632812 is involved in litigation. Any documents and/or materials which would be material to the patentability of this reissue application are required to be made of record in reply to this action.

Due to the related litigation status of this application, EXTENSIONS OF TIME UNDER THE PROVISIONS OF 37 CFR 1.136(a) WILL NOT BE PERMITTED DURING THE PROSECUTION OF THIS APPLICATION.

This application is objected to under 37 CFR 1.172(a) as the assignee has not established its ownership interest in the patent for which reissue is being requested. An assignee must establish its ownership interest in order to support the consent to a reissue application required by 37 CFR 1.172(a). The assignee's ownership interest is established by:

(a) filing in the reissue application evidence of a chain of title from the original owner to the assignee, or

(b) specifying in the record of the reissue application where such evidence is recorded in the Office (e.g., reel and frame number, etc.).

The submission with respect to (a) and (b) to establish ownership must be signed by a party authorized to act on behalf of the assignee. See MPEP § 1410.01.

An appropriate paper satisfying the requirements of 37 CFR 3.73 must be submitted in reply to this Office action.

PLEASE NOTE that while a statement under 37 CFR 3.73(b), signed by the assignee, has been filed, **the statement has not been filled in; i.e., the applicants have submitted a signed, but completely blank, form.**

This reissue application was filed without the required offer to surrender the original patent or, if the original is lost or inaccessible, an affidavit or declaration to that effect. The original patent, or an affidavit or declaration as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Claims 9-12 are rejected under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought. The added material which is not supported by the prior patent is as follows: the recitations in step (b) of claim 9 and in step (c) of claim 12 that the "alkali metal hydroxide removes from the resin *substantially all* heat stable salt anions transferred to the resin in step (a)" (emphasis added). While the specification, in the penultimate paragraph preceding Example 1 on page 5, teaches recovery of over 50% of the virgin capacity of the resin, no original teaching can be found that *substantially all* heat stable salt anions are removed. Also, original support cannot be found for the recitation in claim 11 that the aqueous alkanolamine solution is approximately 40% by weight alkanolamine.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-12 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Original support cannot be found for the recitations in step (b) of claim 9 and in step (c) of claim 12 that the "alkali metal hydroxide removes from the resin *substantially all* heat stable salt anions transferred to the resin in step (a)" (emphasis added). Also, original support cannot be found for the recitation in claim 11 that the aqueous alkanolamine solution is approximately 40% by weight alkanolamine.

Claims 9-12 are rejected under 35 U.S.C. 251 as being an improper recapture of claimed subject matter deliberately canceled in the application for the patent upon which the present reissue is based. As stated in *Ball Corp.* v. *United States*, 221 USPQ 289, 295 (Fed. Cir. 1984):

> The recapture rule bars the patentee from acquiring, through reissue, claims that are of the same or broader scope than those claims that were canceled from the original application.

In paragraph a) of each of claims 9 and 12, the applicants recite that *at least some* heat stable salt anions are transferred from the solution to the resin: "to transfer at least some heat stable salt anions from the solution to the resin".

In paragraph b) of claim 9 and in paragraph c) of claim 12, the applicants recite that the alkali metal hydroxide "removes from the resin *substantially all* heat stable salt anions transferred to the resin in step a)" (emphasis added).

Original claim 5 (as well as original claim 1) recites in the first step that "the active anion exchange sites of said Type II strong base anion exchange resin *are loaded* with heat stable anions" (emphasis added). Original claim 5 recites in the second step that *over 50% of the virgin capacity* of the *loaded* Type II resin are recovered: "to obtain recovery of over 50% of the virgin capacity of the loaded Type II resin".

Therefore, as recited in present claims 9-12, only a minor or trace amount of heat stable salt anions need be transferred to the resin in the first step, as compared with the recitation in original claim 5, which requires that the resin be *loaded*, i.e., that all or substantially all of the active sites now contain heat stable salt anions which have been transferred to the resin. This fairly implies that far more than minor or nominal amount of anions have been transferred, as indicated in the second step of original claim 5, which recites that *over 50% of the virgin capacity* of the *loaded* Type II resin are recovered, and also as argued in the response of October 1, 1997 (Amendment E, Paper No. 14) of the original application serial no. 08/730438, in the last paragraph of page 6, "the claimed invention provides that *all available active resin sites* are normally loaded" (emphasis added). The virgin capacity refers to the original capacity when the resin is new (virgin), also as argued by the applicants in the first paragraph at the top of page 7 of the same response "without the loss of active sites beyond about 50% of the *original (virgin)*

number of active sites" (emphasis added). Applicants also distinguished the Seal reference on this point (see the last paragraph of page 4 of the response of October 1, 1997):

"Seal, as noted by the examiner, mentions 'depletion of the resin bed to 50% of the original capacity. . .'. It is clear from the context that this is referring to usable and regenerable capacity. In Seal, "original capacity", means capacity resulting from the last regeneration. *Clearly, Seal has nothing to do with the claimed invention*" (emphasis added).

Also in distinguishing Seal, the applicants argued in the penultimate paragraph of page 4 of the response of October 1, 1997:

"In the present invention the bed can be regenerated to only about 50% of the virgin capacity (emphasis in the original). Normally, the resin is loaded to approximate totality of its exchange capacity before regeneration, whatever that capacity is. Subsequent exhaustion and regeneration cycles do approximate complete exchanges of the active nominal 50% of the virgin capacity. The other 50% of the virgin capacity seems to be irreversibly lost. . ."

Therefore, by "original (or virgin) capacity", applicants are clearly referring to the new, original, virgin capacity of the resin, and not the capacity of the resin after it has been used, resulting in the usable and regenerable capacity as shown by Seal. Note that the Seal reference did not relate to the sorption of heat stable anions or SCN specifically. Seal was cited for the teaching of the step of loading the resin with anions such that one half (50%) of the exchange sites remain active (see page 3 of the Office Action dated March 26, 1997.

In the same response of October 1, 1997, the applicants amended each of the independent claims to reflect their arguments. Present claims 1, 5, and 9 were each amended to include the recitation: "for a time sufficient to obtain recovery of *over 50% of the* ***virgin*** *capacity of the*

loaded Type to resin" (emphasis added). In the response of October 15, 1996, applicants submitted new claims 22, 26, and 29, each of which newly recited that the resin was *loaded* with heat stable salt anions or SCN.

Returning to the recitation of present claims 9 and 12, the applicants recite that *at least some* heat stable salt anions are transferred from the solution to the resin. Only a minor or trace amount of heat stable salt anions need be transferred to the resin in the first step, as compared with the recitation in original claim 5, which requires that the resin be *loaded*, i.e., that all or substantially all of the active sites now contain heat stable salt anions which have been transferred to the resin. Because the applicants argued that the virgin capacity of the resin of the invention refers to the original capacity of the resin when it is new, rather than to the usable capacity, and because the applicants argued that the claimed invention provides that all available active resin sites are normally loaded, a reasonable reading of the recitation in original claim 5 that the active sites are loaded with heat stable salt anions fairly implies that far more than a minor or trace amount of anions have been transferred.

Therefore, the recitation in claims 9-12 "to transfer *at least some* heat stable salt anions from the solution to the resin" broadens from the original recitation that the active anions sites are loaded with heat stable anions and then over 50% of the virgin capacity of the loaded resin is recovered, and is an improper recapture of claimed subject matter deliberately canceled in the application for the patent upon which the present reissue is based, for the reasons given above.

Furthermore, step b) of claim 9 and step c) of claim 12 recite that *substantially all* heat stable salt anions transferred to the resin in step a) are removed from the resin. However, as argued by the applicants in their response of October 17, 1997 distinguishing Seal, discussed above, that the "other 50% of the virgin capacity seems to be irreversibly lost " following the initial exposure. Therefore, as argued by the applicants, clearly substantially all of the heat stable salt anions transferred to the resin are not removed, at least not after the initial exposure, if, of course, a substantial amount of the heat stable anions were originally transferred to the resin, such that all of the active sites are loaded as argued by the applicants in reference to the original claims. When read in combination with the first step of claims 9-12, the presently recited step simply removes substantially all of a minor or trace amount of heat stable salt anions that were transferred in the first step, which is far removed from the recitation that the active sites are loaded, and that 50% of the *virgin* capacity is then recovered (fairly implying more than a minor or trace amount of anions were transferred). Therefore the recitation in claims 9-12 "so that the alkali metal hydroxide removes from the resin substantially all heat stable salts transferred to the resin in step a)" broadens from the original recitation "to obtain recovery of over 50% of the virgin capacity of the loaded Type II resin", and is an improper recapture of claimed subject matter deliberately canceled in the application for the patent upon which the present reissue is based.

The examiner notes that present claims 9-12 recite a process for purifying an aqueous alkanolamine solution while original claims 1 and 5, for example, recite a process for regenerating

a Type II anion exchange resin. However, a review of the steps of each of these claims reveals that both the original and the patent claims recite essentially the same steps of passing an alkanolamine solution through a bed of Type II anion exchange resin (original claims 1 and 5), which is the same as contacting the aqueous alkanolamine solution with a type II strong base anion exchange resin as recited in claims 9 and 12. The step recited in original claims 1 and 5 of loading the active anion exchange sites with heat stable anions includes the step of transferring the anions to the resin as recited in claims 9 and 12, although the recitation is broadened as discussed in detail above. Also the recitation of contacting the loaded Type II resin with an amount of an alkali metal hydroxide and for a time sufficient to obtain recovery of over 50% of the virgin capacity of the loaded Type II resin necessarily removes from the resin heat stable anions transferred to the resin, although "substantially all" of a minor or trace amount of heat stable salt anions broadens the recitation as discussed above. Therefore, since the present claims recite the same steps as those recited in the original claims (with the exception that the scope of the recitation is broadened), the presently recited process for purifying an aqueous alkanolamine solution is another way of the labeling or naming the originally recited process of regenerating a Type II strong base anion exchange resin.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103 as being unpatentable over Keller, U.S. Patent 5,045,291.

Keller teaches a cyclic process for purifying an aqueous alkanolamine solution containing alkali metal salts of anions which form heat stable salts with alkanolamines, heat stable salts of such anions with alkanolamines, or both, comprising contacting the aqueous alkanolamine solution with a Type II strong base anion exchange resin. The disclosure in lines 64-65 of column 3 of the heat stable salt anion removal capability of the anion exchanger fairly implies that the heat stable salt anions are transferred (removed) from the solution to the anion exchange resin. The resin of Keller is regenerated by contacting the resin with an alkali metal hydroxide (NaOH), which removes the heat stable salt anions from the resin (see lines 28-30 of column 4). The term "at least some" as recited in step a) reads on a minor or trace amount of anions transferred to the resin. The removal step of Keller fairly implies that substantially all of a minor or trace amount of

anions which can be transferred to the resin in the service step as presently recited are removed. Even if the removal step of Keller does not necessarily remove all of the minimal amount of anions transferred to the resin, it would have been obvious to continue contacting the resin with sufficient NaOH so that substantially all of the minimal amount of anions transferred to the resin are removed. See generally lines 15-62 of column 3, lines 11-30 of column 4, and lines 48-58 of column 4 of Keller. Regarding the Type II resin, Keller expressly discloses the use of Dow styrene-divinyl benzene strong base anion exchange resins having quaternary amines as their functional groups, in addition to Rohm and Haas Amberlite IRA-410, which applicants define as Type II resins (compare the Keller disclosure with lines 30-40 of column 5 of the patent, shown on page 5 of the reissue application).

Regarding claim 12, the hydrocarbon gas stream of Keller contains acid gasses as taught in lines 28-30 of column 3. The recirculating step of claim 12 is taught in lines 60-62 of column 3. The repetition of the steps is taught in lines 55-59 of column 4, lines 13-21 of column 6, Figure 1, and claim 1.

Claims 1-8 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L. Nessler whose telephone number is (703) 308-3843.

cn

Cynthia L. Nessler

August 30, 2001